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The use of real-time digital video in the assessment of post-operative outcomes of breast reconstruction

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KEYWORDS
Breast reconstruction;
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Summary *Introduction:* Outcome measures of breast reconstruction have used panel assessment of photographs. This provides limited information to the assessor as these images are static..

The aim of this study was to assess whether the use of digital video was a valid assessment tool and to compare its use against photography.

Methods: 35 patients post-reconstruction underwent photography, digital video capture and completed Breast Cancer Treatment Outcomes Scale (BCTOS) questionnaires. The photographs/video clips were randomised and shown to a 21 member panel. Opinions on aesthetic aspects of the reconstruction were assessed using the BCTOS and Harris scale.

Panel inter-rater agreement and patient-panel correlation was assessed using Kendall's Coefficient of Concordance and Spearman's rank correlation tests respectively.

Results: There was a "moderate" degree of inter-rater agreement amongst panel members in all categories. Greater agreement occurred using video footage to assess overall cosmesis (0.548 vs 0.507) and shape (0.505 vs 0.486). Video showed a greater degree of correlation with patient self-assessment scores in comparison to photography (0.311 vs 0.281).

Conclusion: Video footage coupled with panel assessment is a valid method of assessing post-operative outcomes of breast reconstruction and appears superior to still photographs in terms of inter-rater agreement and correlation with patient self-assessment.

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Introduction

The ideal goal of breast reconstruction is to replace the removed breast tissue with something similar and to achieve symmetry with the contralateral breast.[1]

Conventional methods of assessing the aesthetic outcome of any form of breast surgery have often involved the use of questionnaires and still clinical photographs shown to an assessment panel. These two-dimensional images provide a limited amount of information to the assessor. To obtain further information more complex measuring tools; such as the use of three dimensional imaging, have recently been described.[2,3]

All these techniques provide static results and lack the ability to confer any information about the effect which movement has on the reconstructed breast. Gui et al. previously highlighted this point and felt that better assessment may be made using video clips, but noted that there were no studies comparing the use of still photographs with video footage.[4]

Aim of the study

The aim of this study was to assess whether standardised real-time digital video footage was a valid assessment tool in assessing post-operative outcomes and to compare its use against standardised static photography.

Materials & methods

No standard protocol exists for the use of real time digital video capture in the assessment of post-operative breast reconstruction outcomes. As such a script was created by the senior author (ADM) outlining the instructions for a sequence of movements (incorporating all views obtained by photography), deemed necessary to allow subjective assessment (Figure 1).

The services of a female model were utilised to perform the above scripted routine whilst undergoing digital video capture. Narrated position and movement instructions were then added to the video footage to create an instructional demonstrational digital video clip providing both clear visual and audio instructions to the viewer.

Thirty-five patients at least six months post unilateral breast reconstruction were recruited and consented for this study.

Patients were initially asked to complete a 22 item questionnaire developed by Stanton et al. with regards to their opinion on their reconstruction.[5] This questionnaire requires the patient to compare their reconstruction with the non-reconstructed breast and to score on a simple 1 (no difference) — 4 (large difference) scale for various aspects ranging from cosmesis to function.

Study subjects were then shown the instructional video clip and asked to mimic the movements whilst undergoing

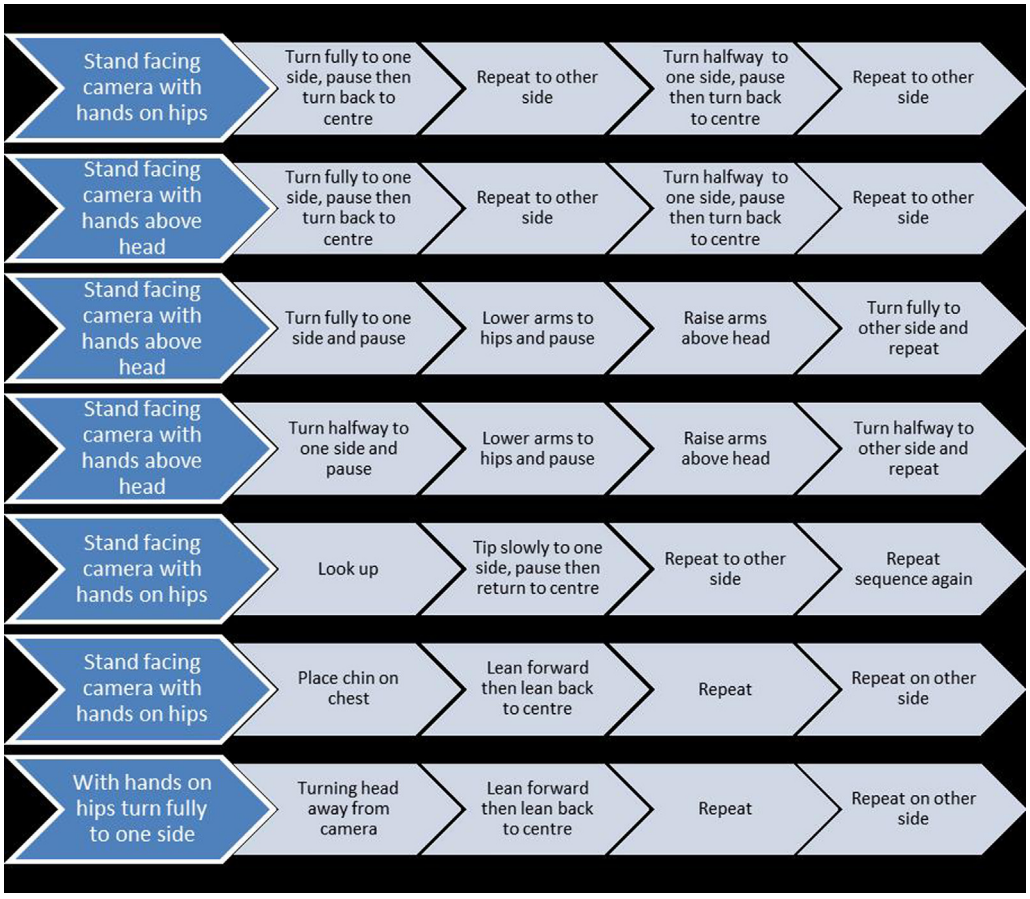

Figure 1 Scripted movement routine for digital video capture.